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Manual therapy in the treatment of rotator cuff tendinopathy: Literature review

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INTRODUCTION

Rotator cuff tendinopathy refers to an injury to the tendons, which causes localized pain in the shoulder region, weakness, and impaired function, it is most commonly associated with external rotation and elevation movements of the shoulder. The rotator cuff is made up of four muscles, being the subscapularis, supraspinatus, infraspinatus and teres minor. These muscles provide functional stability of the joint and perform shoulder movements. Symptoms can manifest acutely after an injury or chronically as a result of exposure to excessive load and repetitive movements (1,2).

Shoulder pain constitutes the third leading musculoskeletal complaint, and accounts for about $3 million in associated health care costs in the United States alone. Rotator cuff injuries affect populations in an age-dependent manner. Prevalence rates increase from 5% to 10% in patients under 20 years of age and more than 60% in individuals over 80 years of age (1).

Thus, there are several mechanisms related to the cause of tendinopathy, which can be intrinsic, extrinsic or combined. The intrinsic mechanism addresses factors associated with tendon health and quality, and may include the aging process, genetics, vascular alterations, and exaggerated loading. The extrinsic mechanism is fully involved in tendon friction, due to contact with structures such as the humeral head and the coracoacromial arch, caused by the malfunction of the muscles responsible for controlling the position of the humeral head secondary to weakness, fatigue and structural incompetence. As a result, all these changes compromise the individual's functionality, reducing their quality of life and performance of daily activities (1,2).

Thus, physical therapy interventions, specifically manual therapy, can be allied in the resolution of the symptoms of rotator cuff tendinopathy, and may include massages, manipulations, joint mobilizations, release of tension points or soft tissues, which can relieve pain and improve movement. Manual therapy acts through associated biomechanical and/or neurophysiological mechanisms. The biomechanical effects promote, through touch, handling of the skin and adjacent structures, a neurophysiological effect in a

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combined way, being resolutive in the sensation of pain. However, it is not yet clear whether there are greater benefits of manual therapy in the treatment of pain intensity compared to other physical therapy interventions (3,4).

Thus, the objective of this review is to verify the efficacy of manual therapy versus any other type of physical therapy intervention used to improve pain intensity in rotator cuff tendinopathy.

MATERIALS AND METHODS

This is a literature review, carried out in the US National Library of Medicine (PubMed) and Scielo databases. Within the eligibility criteria, randomized controlled trials published between 2010 and 2024, in English and Portuguese, that used manual therapy compared to any other type of intervention as a treatment for rotator cuff tendinopathy were included. Literature reviews, abstracts, protocols for clinical trials,work that does not meet the guiding question of the research, duplicates, animal research, and *in vitro studies were excluded from the research*. The following keywords were used: "Shoulder impingement syndrome", "Shoulder pain", "Manual Therapy", "Mobilization", "Physical Therapy" and "Randomized clinical trial", carried out between January and February 2024. The Boolean operators "AND" and "OR" were used to combine the descriptors and terms used in the search for the articles. In a first stage, a survey of articles found with the descriptors was carried out, and later, a careful selection of the works, and finally the inclusion of articles that met the eligibility criteria.

RESULTS

The selection of studies began with a search in the databases with the descriptors already mentioned, and 45 references were identified from the searches in the two databases, 12 were eliminated after the removal of duplicates, leaving 33. Of these, a total of three studies were considered to be of potential relevance and extraction of complete data, as they met the pre-established inclusion criteria. All articles included in this review addressed manual therapy techniques compared to other interventions in individuals with rotator cuff tendinopathy, totaling 129 participants included. In a clinical trial, with 20 participants, randomly assigned to two groups, who received shoulder mobilization techniques and kinesiotaping (resistant adhesive tape, used to accelerate recovery from an injury), compared to supervised exercises. Mobilization of the shoulder region seemed to be effective in improving pain intensity, which can be observed by the decrease in the score of the analog pain scale, and improvement in range of motion, compared to isolated exercises, for ten days (5).

Thus, in another controlled study, with 76 participants, distributed in three groups: group that received mobilization of the shoulder joint and supervised exercises;supervised exercise group and the group that performed a home-based exercise program for 12 weeks. All groups showed a significant

decrease in pain intensity, analyzed by means of the visual analog scale, and an increase in shoulder muscle strength and function. It is known that both manual therapy, supervised exercises and home exercises are effective and promising methods in the rehabilitation of patients with rotator cuff tendinopathy (6).

On the other hand, a clinical trial with 33 individuals, who were divided into four groups: group with only supervised exercise; group with glenohumeral mobilizations and supervised exercises; supervised exercise group with a mobilization technique with movement and control group. In general, manual therapy included techniques for mobilizing the glenohumeral joint, such as anterior, posterior, and inferior glides of the joint and passive accessory movements; and the exercises covered posterior capsule stretching, postural correction exercises and a rotator cuff strengthening and scapular stabilization program. Evidence, significant reductions in pain, and improvement in function. But unlike the other studies included, the latest study described shows that exercise is effective in decreasing pain intensity and manual therapy can be used in an additional way to optimize pain reduction. These results can be analyzed by the decrease in the pain index by the visual analog scale, the Neer test, negative Hakkins-Kennedy test for shoulder pain and by the Shoulder Pain and Disability Index (7).

FINAL CONSIDERATIONS

The results obtained indicate that individuals with rotator cuff tendinopathy can be treated with manual therapy alone, however, this can be performed in an additional way to optimize the expected results, associated with other interventions, such as exercises, to improve pain intensity and recover strength and functionality. Therefore, current studies with larger populations are recommended, with the objective of structuring more specific interventions for the management of shoulder tendinopathy.

Keywords: Rotator cuff tendinopathy, Subacromial impingement syndrome, Physical therapy, Randomized clinical trial.

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